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There's proof that Sonicare FlexCare works

With its unique new brush head design for better tooth coverage and superior plaque removal, FlexCare is our best brush so far. Here are the clinical and laboratory studies that outline the advantages for your patients.

[Learn more about FlexCare ▶](#)[Read clinical study summaries ▶](#)[View in-mouth video ▶](#)

Oral care & your health

Twice a day for a healthier mouth

Deficient oral health can undermine your patients' overall well-being while some health conditions and illnesses can affect the health of teeth and gums.

+ Learn more about the link between oral health and overall health

Oral health tips

Here's a list of proper brushing and flossing techniques for your patients to maintain excellent oral health.

+ Read tips

Special health conditions

Educate patients on how illnesses and special conditions can impact their dental care.

+ Read about special conditions

Biofilm

Disruption of this harmful microorganism as a precursor to oral disease is key to patients' oral health.

+ Read about Biofilm

Why dispense Sonicare?

Superior technology

Our technology generates high amplitude and high frequency bristle motion, creating dynamic cleaning action. Gentle on dentin, it penetrates deeply into interproximal spaces.

+ More about Sonicare technology

Philips Sonicare is backed by more than 140 abstracts representing clinical and laboratory studies at over 40 universities and research institutions worldwide

+ More about Sonicare's proven results

Improved patient compliance

Sonicare delivers visible results in only 2 weeks – enough to encourage patient compliance. For many, whiter teeth are a great motivator to maintain proper oral health habits.

+ More about improved patient compliance

Professionals recommend Sonicare

Sonicare is the most recommended power toothbrush by U.S. dental professionals.

+ Read peer opinions



Pro Series Products

The Sonicare Pro Series makes it easy for you to offer superior cleaning at a great price.

+ See our line of products



Continuing Education

Sonicare has online CE options that are worth CE credits.

+ Learn more about Continuing Education



Professional Resources

Order brochures, sample products and more.

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Compendium

Read clinical studies on Philips Sonicare in *Compendium's* September supplement.

+ Download *Compendium*

NYSE | US\$ 38.42

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Clinical Studies

Philips Sonicare is backed by more than 140 abstracts representing clinical and laboratory studies at over 40 universities and research institutions worldwide. Take a look at some of the studies that have helped make Sonicare the most recommended power toothbrush.

Study	Topic	Comparison Product
In vitro evaluation of interproximal biofilm removal with power toothbrushes Compares the removal of interproximal biofilm beyond the reach of the bristles of the Sonicare FlexCare and a rotating-oscillating power toothbrush, using an in vitro model	Plaque Biofilm Disruption	Oral-B Triumph
Effect of the Sonicare FlexCare power toothbrush on fluoride delivery through Streptococcus mutans biofilms Evaluates the ability of two power toothbrushes, the Sonicare FlexCare and the Oral-B Triumph, to enhance the diffusion of fluoride through a biofilm by fluid dynamic action in vitro	Plaque Biofilm Disruption	Oral-B Triumph
Comparison of the interproximal plaque removal efficacy of two powered toothbrushes using in vitro oral biofilms Compares, in vitro, the interproximal plaque removal beyond the bristles of two power toothbrushes	Plaque Biofilm Disruption	Oral-B 3D
Comparison of plaque removal by Sonicare FlexCare and Sonicare Elite Compares the plaque removal efficacy of the Sonicare FlexCare and Sonicare Elite power toothbrushes	Plaque Removal	Sonicare Elite
Comparison of plaque removal by Sonicare FlexCare and Oral-B Sonic Complete A study to evaluate the plaque removal efficacy of the Sonicare Elite compared to a manual toothbrush	Plaque Removal	Oral-B Sonic Complete
Comparison of plaque removal by Sonicare FlexCare and Oral-B Triumph	Plaque Removal	Oral-B Triumph

Compares the plaque removal efficacy of the Sonicare FlexCare and Oral-B Triumph toothbrushes

Comparison of plaque removal by Sonicare FlexCare and Oral-B Triumph	Plaque Removal	Oral-B Triumph
Compares the plaque removal efficacy of the Sonicare FlexCare and Oral-B Triumph toothbrushes		

Comparison of plaque removal for 1-minute brushing by Sonicare FlexCare and a manual toothbrush	Plaque Removal	Manual
Compares the plaque removal efficacy and safety of the Sonicare FlexCare and a manual toothbrush when used for 1 minute of brushing		

Comparison of plaque removal by Sonicare FlexCare and National Doltz EW1037	Plaque Removal	National Doltz EW1037
Compares the plaque removal efficacy and safety of the Sonicare FlexCare and National Doltz EW1037 power toothbrushes		

Comparison of plaque removal by Sonicare Elite e9000 Series mini brush head and National Doltz EW 1035	Plaque Removal	National Doltz EW1035
Compares the plaque removal efficacy of the Sonicare Elite e9000 Series mini brush head and National Doltz EW 1035		

Plaque removal efficacy of a Sonicare Elite in periodontal maintenance patients compared to a manual toothbrush	Plaque Removal	Manual
Compares the plaque removal efficacy of Sonicare Elite and a manual toothbrush in a periodontal maintenance population		

Comparison of plaque removal by Sonicare Xtreme e3000 Series and manual toothbrush in preteens and teens aged 9-17 years	Plaque Removal	Manual
Compares the plaque removal efficacy of Sonicare Xtreme and manual toothbrush in subjects aged 9-17 years		

Comparison of plaque removal by Sonicare FlexCare and Rota-dent One Step	Plaque Removal	Rota-dent One Step
Compares the plaque removal efficacy of the Sonicare FlexCare and Rota-dent One Step toothbrushes		

Comparison of plaque removal by Sonicare FlexCare, Ultreo and Ultreo with ultrasonic function disabled	Plaque Removal	Ultreo
Compares the plaque removal efficacy of the Sonicare FlexCare and Ultreo power toothbrush with the ultrasonic function active and disabled		

Comparison of gingivitis reduction plaque removal by	Gingival Health	Manual
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Sonicare FlexCare and a manual toothbrush
Evaluates the ability of the Sonicare FlexCare to
reduce gingivitis and gingival bleeding over time
Compares the plaque removal ability of the Sonicare
FlexCare to a manual toothbrush over time

Gingival health of a periodontal maintenance gingival health assessment after use of Sonicare Elite Demonstrates the ability of Sonicare Elite to reduce gingivitis	Gingival Health	N/A
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Gingival health of a periodontal maintenance population after the use of Sonicare Elite or a manual toothbrush over a 12-week period Assesses the gingival health status of a periodontal maintenance population using either Sonicare Elite or a manual toothbrush over a 12-week period	Gingival Health	Manual
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In vitro assessment of dentin wear resulting from the use of oral hygiene devices Evaluates dentin wear associated with the use of the Sonicare FlexCare power toothbrush compared to Oral-B Triumph and a manual toothbrush using simulated clinical conditions	Gentleness	Oral-B Triumph
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In vitro effect of power toothbrushes on orthodontic bracket bond strength Evaluates the effect of two new power toothbrushes and a manual toothbrush on the bond strength of orthodontic brackets bonded to human enamel using simulated clinical conditions	Gentleness	Manual
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In vitro assessment of the effect of a manual and Sonicare FlexCare toothbrush on gloss and roughness of dental materials Evaluates the effect on wear of dental materials of the Sonicare FlexCare power toothbrush and a manual toothbrush using simulated clinical conditions	Gentleness	Manual
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Evaluation of tooth shade change following stain induction and Sonicare FlexCare use Evaluates the efficacy of the Sonicare FlexCare to remove induced extrinsic tooth stains	Stain Removal	N/A
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Comparison of brushing compliance with Sonicare Xtreme e3000 Series versus manual toothbrush in preteens and teens A study conducted to evaluate brushing experience in preteens and teens with Sonicare Xtreme showed that overall pre-teens and teens were very satisfied using the Sonicare Xtreme e3000 Series	Compliance	Manual
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In vitro evaluation of the Sonicare FlexCare Integrated UV Sanitizer	Sanitizer	N/A
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A study to evaluate in vitro the ability of the Sonicare FlexCare Integrated UV Sanitizer to reduce viability of microorganisms on the Flexcare ProResults brush heads

In vitro evaluation of the Sonicare UV Sanitizer for various power toothbrush heads	Sanitizer	N/A
A study to evaluate in vitro the ability of the Sonicare UV Sanitizer to reduce viability of microorganisms on several types of brush heads of power toothbrushes		

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In vitro evaluation of interproximal biofilm removal with power toothbrushes

Objective

To compare the removal of interproximal biofilm beyond the reach of the bristles of the Sonicare FlexCare and a rotating-oscillating power toothbrush, using an in vitro model

Methodology

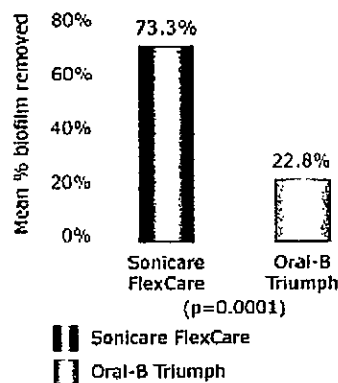
The ability of the Sonicare FlexCare and Oral-B Triumph to remove biofilm without direct bristle contact was evaluated using a dental plaque model of a multispecies oral biofilm grown on hydroxyapatite discs. In a typodont model, the discs with plaque biofilm were located on interproximal sites of molar teeth at a distance of 2-4 mm from the bristles, and exposed to the fluid dynamic activity generated by the activated brushes. An inactivated Sonicare FlexCare was used as a control. Plaque removal efficacy was determined by enumeration of the percentage of viable bacteria removed from the discs as a result of brushing.

Results

The active Sonicare FlexCare toothbrush removed a significantly higher percentage of biofilm bacteria when compared to both the inactive state ($p < 0.0001$) and the active Oral-B Triumph toothbrush ($p = 0.0001$). Moreover, with 73% plaque biofilm removal, the Sonicare FlexCare removed three times the amount of plaque biofilm when compared to the Oral-B Triumph, with 23% removal.

Conclusion

Sonicare FlexCare removed significantly more biofilm 2-4 mm beyond the reach of the bristles than the Oral-B Triumph.

Removal of biofilm bacteria from HA discs in an interproximal site model

Aspiras M, Elliott N, Nelson R, Hix J, Johnson M, de Jager M. In vitro evaluation of interproximal biofilm removal with power toothbrushes. Comp Cont Educ Dent 2007; 28

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Effect of the Sonicare FlexCare power toothbrush on fluoride delivery through Streptococcus mutans biofilms

Objective

Evaluate the ability of two power toothbrushes, the Sonicare FlexCare and the Oral-B Triumph, to enhance the diffusion of fluoride through a biofilm by fluid dynamic action in vitro

Methodology

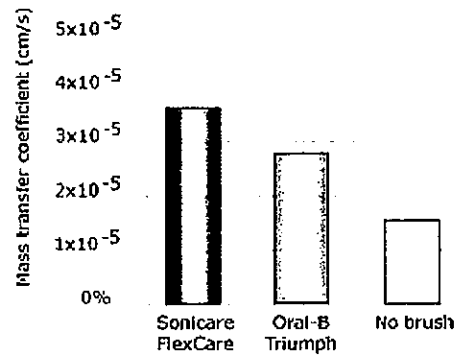
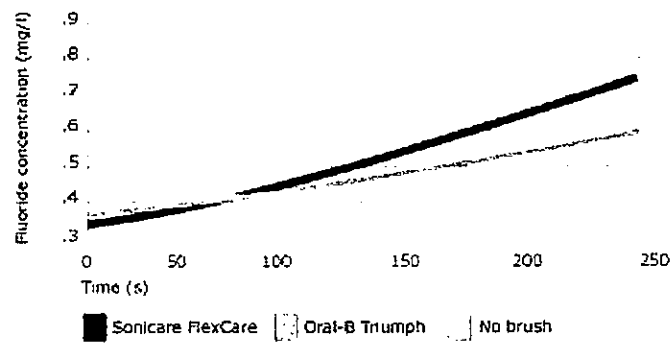
Fluoride diffusion was established by an experimental system that measured the rate of fluoride diffusion through a membrane colonized with a Streptococcus mutans biofilm. In a fluid-filled container, the biofilm colonized membrane was contained in a water tight partition that separated the "brushing" chamber from the "measurement" chamber. Brushes were positioned perpendicular to the biofilm at 10 mm distance, then fluoride (1100 ppm NaF) was added to the brushing chamber and the brush activated to enhance fluoride penetration to the measurement chamber through fluid dynamic activity. Penetration of fluoride through the biofilm and membrane was measured with a fluoride electrode over a 4 minute period, and expressed as the "mass transfer coefficient".

Results

The mass transfer coefficient (a measure of the rate of delivery of fluoride through the biofilm-colonized membrane) of fluoride generated by powered brushing was significantly greater ($p < 0.05$) than that from passive diffusion alone (no brushing): Sonicare FlexCare increased diffusion by 129% over no brushing. Sonicare FlexCare resulted in a significantly greater ($p < 0.05$) mass transfer coefficient than the Oral-B Triumph by 29%.

Conclusion

This study demonstrated that the fluid dynamic action of Sonicare FlexCare enhances the penetration of fluoride through biofilm which may, in turn, help increase the bioavailability of fluoride in residual dental plaque.



Stoodley P, Nguyen D, Longwell M, Nistico L, von Ohle Ch, Milanovich N, de Jager M. Effect of the Sonicare FlexCare power toothbrush on fluoride delivery through *Streptococcus mutans* biofilms. *Comp Cont Dent Educ* 2007;28

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Comparison of the interproximal plaque removal efficacy of two powered toothbrushes using in vitro oral biofilms

Objective

To compare, in vitro, the interproximal plaque removal beyond the bristles of two power toothbrushes

Methodology

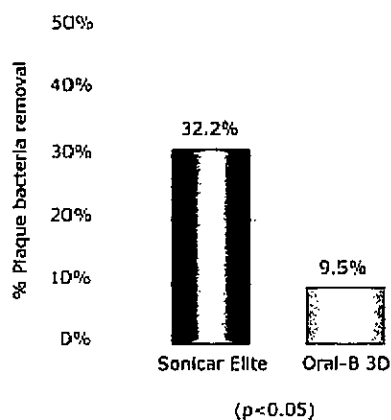
A dental plaque model in which a multispecies biofilm was grown on hydroxyapatite discs was used to evaluate the ability of Sonicare Elite and Oral-B 3D to remove biofilm without bristle contact. The dental plaque model was located interproximally at a distance of approximately 2 mm from the bristles and exposed to the fluid dynamic activity generated by the brushes with the motors either activated or inactivated for 5 seconds.

Results

In the activated state, both brushes removed a significantly higher percentage of plaque biofilm compared to the inactive brushes. The percentage of plaque bacteria removed by Sonicare Elite (32.2%) beyond the bristles was significantly greater than that removed by Oral-B 3D (9.5%), ($p < 0.05$).

Conclusion


Sonicare Elite removed significantly more dental plaque biofilm 2–3 mm beyond the reach of the bristles than Oral-B 3D.



Hope CK, Wilson M. Am J Dent 2002;15:7B-11B.

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Comparison of plaque removal by Sonicare FlexCare and Sonicare Elite

Objective

To compare the plaque removal efficacy of the Sonicare FlexCare and Sonicare Elite power toothbrushes

Methodology

Eighty-nine healthy adults aged 19-64 years, participated in a single-blind, randomized, crossover design study assessing the plaque removal efficacy and safety of the Sonicare FlexCare and Sonicare Elite power toothbrushes. Each toothbrush was

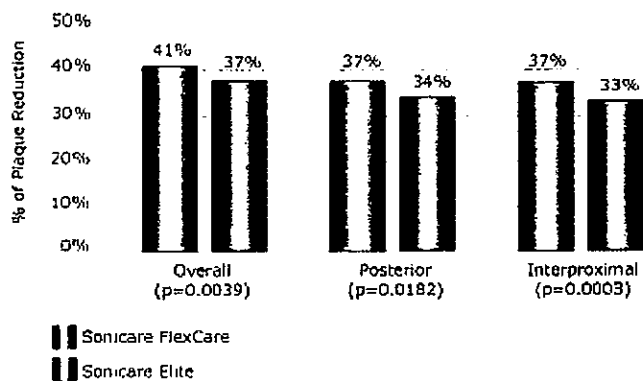
used for one week at home for familiarization. At the end of each period, subjects presented with 24 hours of plaque accumulation and then had an assessment of plaque using the Turesky modified Quigley-Hein Plaque Index before and after a two-minute supervised brushing with the assigned toothbrush. Safety was assessed in oral soft tissue examinations prior to all assessments of plaque.

Results

Sonicare FlexCare removed significantly more plaque than Sonicare Elite from the dentition overall ($p=0.0039$) as well as in hard-to-reach areas, i.e., the posterior teeth ($p=0.0182$) and the interproximal spaces ($p=0.0003$). Both brushes were safe to use.

Conclusion

Sonicare FlexCare was found to remove significantly more plaque than Sonicare Elite when assessed over the entire dentition (overall) as well as in hard-to-reach areas.



Milleman J, Putt MS, Sturm D, Master A, Jenkins W, Schmitt P, Hefti AF. A randomized, crossover design study to compare the plaque removal ability of two Sonicare power toothbrushes, Sonicare FlexCare and Elite 9000. *Comp Cont Educ Dent* 2007; 28

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Comparison of plaque removal by Sonicare FlexCare and Oral-B Sonic Complete

Objective

To compare the plaque removal efficacy and safety of the Sonicare FlexCare and Oral-B Sonic Complete power toothbrushes

Methodology

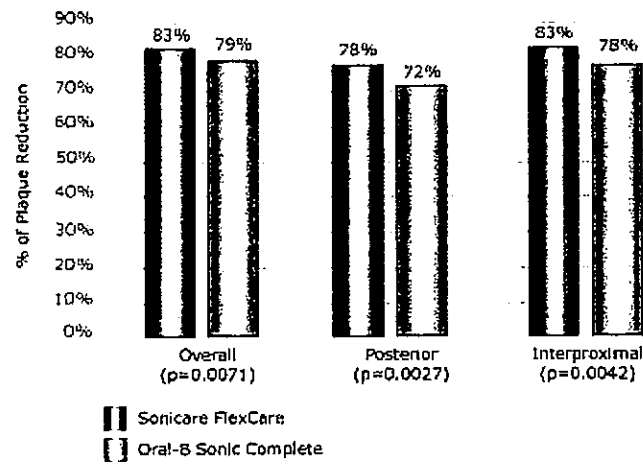
One hundred forty-one healthy adults aged 19-65 years, participated in a single blind, randomized, parallel group clinical study assessing the plaque removal efficacy and safety of the Sonicare FlexCare and Oral-B Sonic Complete power toothbrushes. Each toothbrush was used for two minutes, twice daily for one week at home for familiarization. At the end of this period, subjects presented with 24 hours of plaque accumulation, then had plaque assessment using Turesky modified Quigley-Hein Plaque Index before and after a two-minute supervised brushing with the assigned toothbrush. Safety was assessed in oral soft tissue examinations prior to all assessments of plaque.

Results

Sonicare FlexCare removed significantly more plaque than Oral-B Sonic Complete from the dentition overall ($p=0.0071$) as well as in hard-to-reach areas, i.e., the posterior teeth ($p=0.0027$) and the interproximal spaces ($p=0.0042$). Both brushes were safe to use.

Conclusion

Sonicare FlexCare was found to remove significantly more plaque than Oral-B Sonic Complete when assessed over the entire dentition (overall) as well as in hard-to-reach areas.



McGrady M, Jenkins W, Schmitt P, Sturm D, Hefti A. Data on file, 2007.

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Comparison of plaque removal by Sonicare FlexCare and Oral-B Triumph

Objective

To compare the plaque removal efficacy of the Sonicare FlexCare and Oral-B Triumph toothbrushes

Methodology

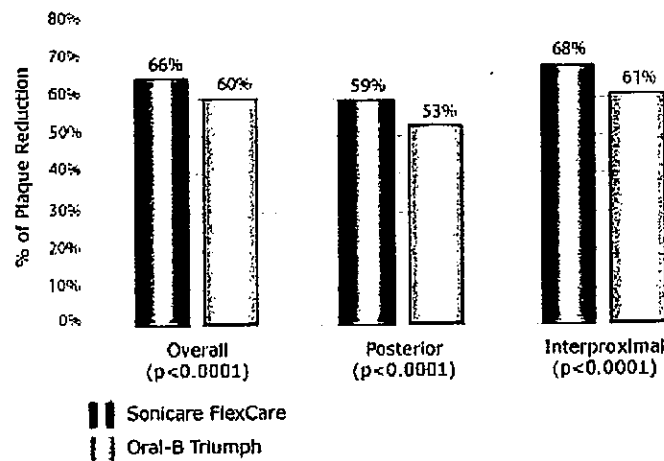
Ninety-one healthy subjects, aged 18-53 years participated in a single-blind, randomized, crossover design study to assess the plaque removal efficacy and safety of the Sonicare FlexCare (ProResults brush head) and Oral-B Triumph (FlossAction brush head) power toothbrushes. Each toothbrush was used for one week at home for familiarization. At the end of each period, subjects presented with 24 hours plaque using the Turesky modified Quigley-Hein Plaque Index before and after a two-minute supervised brushing session with the assigned toothbrush. Safety was assessed in oral soft tissue examinations prior to all assessments of plaque.

Results

Sonicare FlexCare removed significantly more plaque than Oral-B Triumph from the dentition overall ($p < 0.0001$) as well as in hard-to-reach areas, i.e., the posterior teeth ($p < 0.0001$) and the interproximal spaces ($p < 0.0001$). Both toothbrushes were safe to use.

Conclusion


Sonicare FlexCare was found to remove significantly more plaque than Oral-B Triumph when assessed over the entire dentition (overall) as well as in hard-to-reach areas.



Schaeken M, Sturm D, Master A, Jenkins W, Schmitt P. A randomized, single-use study to compare the plaque removal ability of two power toothbrushes, the Sonicare® FlexCare and the Oral-B® Triumph Professional Care. *Comp Cont Dent Educ* 2007;28

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Comparison of plaque removal by Sonicare FlexCare and Oral-B Triumph

Objective

To compare the plaque removal efficacy of the Sonicare FlexCare and Oral-B Triumph toothbrushes

Methodology

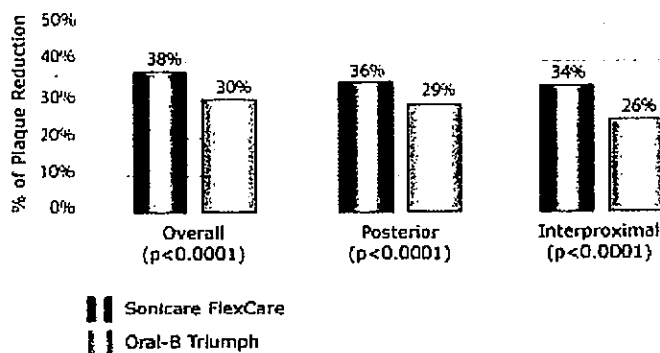
Ninety-three healthy subjects, aged 18-60 years, participated in a single-blind, randomized, crossover-design study to assess the plaque removal efficacy and safety of the Sonicare FlexCare (ProResults brush head) and Oral-B Triumph (FlossAction brush head) power toothbrushes. Each toothbrush was used for one week at home for familiarization. At the end of each period, subjects presented with 24 hours plaque and were assessed using the Turesky modified Quigley-Hein Plaque Index before and after a two-minute supervised brushing session with the assigned toothbrush. Safety was assessed in oral soft tissue examinations prior to all assessments of plaque.

Results

Sonicare FlexCare removed significantly more plaque than Oral-B Triumph from the dentition overall ($p < 0.0001$) as well as in hard-to-reach areas, i.e., the posterior teeth ($p < 0.0001$) and the interproximal spaces ($p < 0.0001$). Both toothbrushes were safe to use.


Conclusion

Sonicare FlexCare was found to remove significantly more plaque than Oral-B Triumph when assessed over the entire dentition (overall) as well as in hard-to-reach areas.



Putt M, Milleman J, Olson M, Wei J, Jenkins W, Strate J. Data on file, 2007.

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Comparison of plaque removal for 1-minute brushing by Sonicare FlexCare and a manual toothbrush

Objective

To compare the plaque removal efficacy and safety of the Sonicare FlexCare and a manual toothbrush when used for 1 minute of brushing

Methodology

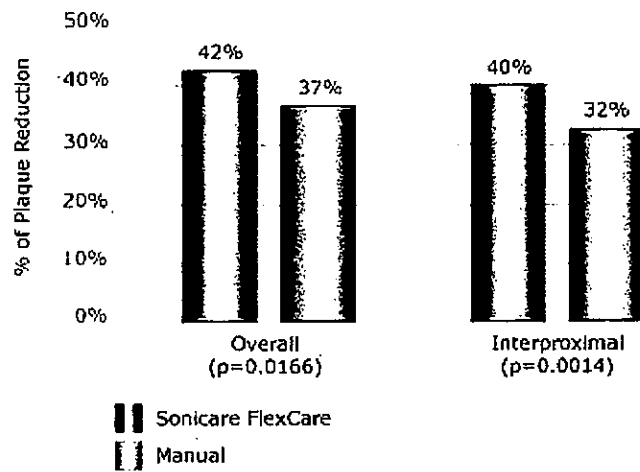
Thirty-five healthy adults aged 19-65 years, participated in a single blind, randomized, crossover design study assessing the plaque removal efficacy and safety of the Sonicare FlexCare and a manual toothbrush (Oral-B P35). Subjects were trained on usage in a 1-minute session per encounter (15 seconds per quadrant, four times daily). Each toothbrush was used for one week at home for familiarization. At the end of each period, subjects presented with 24 hours of plaque accumulation and then had an assessment of plaque using the Turesky modified Quigley-Hein Plaque Index before and after a 1-minute supervised brushing with the assigned toothbrush. Safety was assessed in oral soft tissue examinations prior to all assessments of plaque.

Results

Sonicare FlexCare removed significantly more plaque than the manual toothbrush from the dentition overall ($p=0.0166$) as well as in hard-to-reach areas, i.e., the interproximal spaces ($p=0.0014$). Both toothbrushes were safe to use.

Conclusion


Sonicare FlexCare was found to remove significantly more plaque than a manual toothbrush when used for 1-minute brushing when assessed over the entire dentition (overall) as well as in the hard-to-reach areas.



Platt K, Jenkins W, Schmitt P, Sturm D, Hefti A. Data on file, 2007.

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Comparison of plaque removal by Sonicare FlexCare and National Doltz EW1037

Objective

To compare the plaque removal efficacy and safety of the Sonicare FlexCare and National Doltz EW1037 power toothbrushes

Methodology

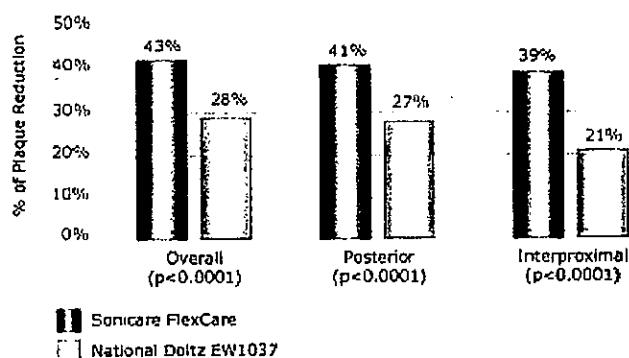
One-hundred fourteen healthy adults aged 18-65 years, participated in a single blind, randomized, parallel group clinical study assessing the plaque removal efficacy and safety of the Sonicare FlexCare and National Doltz EW1037 power toothbrushes. Each toothbrush was used for two minutes, twice daily for one week at home for familiarization. At the end of this period, subjects presented with 24 hours of plaque accumulation, then had an assessment on plaque using Turesky modified Quigley- Hein Plaque Index before and after a two minute supervised brushing with the assigned toothbrush. Safety was assessed in oral soft tissue examinations prior to all assessments of plaque.

Results

Sonicare FlexCare removed significantly more plaque than National Doltz from the dentition overall ($p < 0.0001$) as well as in hard-to-reach areas, i.e., the posterior teeth ($p < 0.0001$) and the interproximal spaces ($p < 0.0001$). Both brushes were safe to use.

Conclusion


Sonicare FlexCare was found to remove significantly more plaque than National Doltz EW1037 when assessed over the entire dentition (overall) as well as in the hard-to-reach areas.



Putt M, Milleman J, Jenkins W, Schmitt P, Sturm D, Strate J.
Data on file, 2007.

NYSE | US\$ 38.27

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Comparison of plaque removal by Sonicare Elite e9000 Series mini brush head and National Doltz EW 1035

Objective

To compare the plaque removal efficacy of the Sonicare Elite e9000 Series mini brush head and National Doltz EW 1035

Methodology

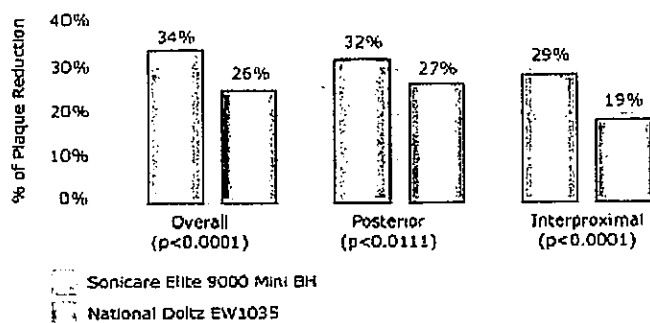
One hundred forty-three healthy adults, aged between 18-65 years, participated in an IRB approved single-blind, randomized, parallel group clinical study assessing the plaque removal ability of Sonicare Elite e9000 Series mini brush head and National Doltz EW 1035. Each toothbrush was used for two minutes, twice daily for one week at home for familiarization. At the end of this period, subjects presented with 24 hours of plaque accumulation, then had an assessment on plaque using Turesky modified Quigley-Hein Plaque Index before and after a two-minute supervised brushing with the assigned toothbrush.

Results

Sonicare Elite e9000 Series mini brush head was superior to National Doltz EW 1035 in removing plaque from the dentition taken as a whole as well as in hard-to-reach areas, i.e., the posterior teeth, and interproximal spaces. Both brushes were safe to use.

Conclusion


Sonicare Elite e9000 Series mini brush head was found to remove significantly more plaque than National Doltz EW 1035 when assessed over the entire dentition as well as in the hard-to-reach areas.



Putt M, Milleman J, Milleman K, Jenkins W, Souza S, Sturm D.
Data on file, 2005.

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Plaque removal efficacy of a Sonicare Elite in periodontal maintenance patients compared to a manual toothbrush

Objective

To compare the plaque removal efficacy of Sonicare Elite and a manual toothbrush in a periodontal maintenance population

Methodology

Forty-two periodontal maintenance patients were enrolled in this randomized, controlled, single-blind crossover study. Participants were assigned to either a manual toothbrush or Sonicare Elite and used each product for a period of 12 weeks.

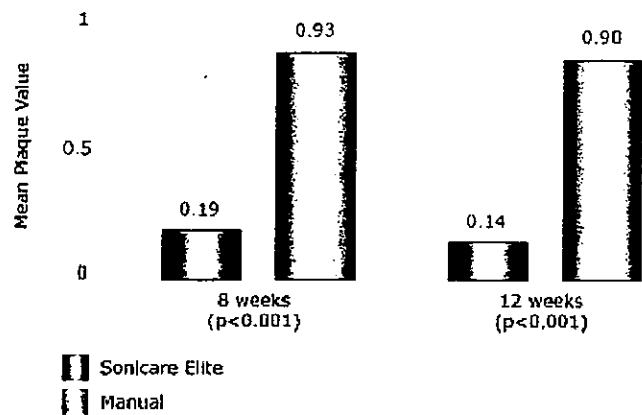
Patients returned to their regular oral hygiene regimen for a period of two weeks before brushing with the second assigned product for another 12 weeks. Prior to entering each of the study periods, participants received a professional polish and brushing instructions. Full mouth plaque scores (Silness & Loe, 1973, six surfaces per tooth) were taken at 8 and 12 weeks.

Results

The mean value for the Plaque Index (PI) after eight weeks of use was 0.93 for the manual brush and 0.19 for Sonicare Elite. The respective values after 12 weeks were 0.90 and 0.14. The differences found after 8 weeks (0.74; $p < 0.001$) and 12 weeks (0.76; $p < 0.001$) were statistically highly significant in favor of the Sonicare Elite.

Conclusion


Sonicare Elite was significantly more effective than a manual toothbrush at removing supragingival plaque in a periodontal maintenance population after 8 and 12 weeks.



Clausnitzer CE, Termaat SHM, Kruse AE, Hellmich M, Noack MJ. J Dent Res 84 (Spec Iss A): abstract 0100, 2005.

NYSE | US\$ 38.26

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Comparison of plaque removal by Sonicare Xtreme e3000 Series and manual toothbrush in preteens and teens aged 9-17 years

Objective

To compare the plaque removal efficacy of the Sonicare Xtreme and manual toothbrush in subjects aged 9-17 years

Methodology

Thirty-nine healthy subjects, aged 9-17 years, participated in an IRB approved single-blind, randomized, parallel design study assessing plaque removal ability of Sonicare Xtreme and manual toothbrush. Each toothbrush was used for one week

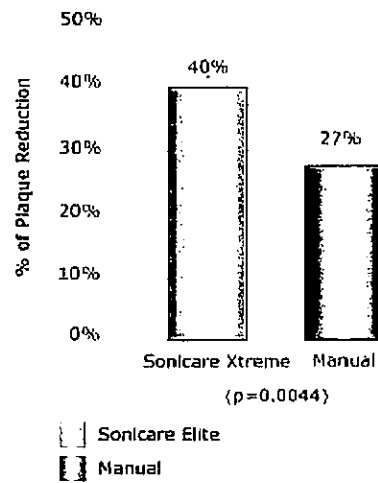
at home for familiarization. Subjects presented with 24 hours of plaque accumulation. Before and after a two-minute supervised brushing, plaque was assessed using the Turesky modified Quigley-Hein Plaque Index. In addition, measurements of toothbrush safety on oral tissues were performed by documenting the presence or absence of spontaneous bleeding and by using Miller's Tooth Mobility Index to assess teeth mobility.

Results

Preteens and teens removed more overall plaque using Sonicare Xtreme than with manual toothbrush ($p=0.0044$). Both toothbrushes were safe and gentle on oral tissues when assessed for spontaneous bleeding and teeth mobility.

Conclusion

Sonicare Xtreme was found to remove significantly more plaque than manual toothbrush in preteens and teens. It is also proven safe and gentle on oral tissues.



Master A S, DeLaurenti M, Souza S M, Sturm D, Hefti A F. Data on file, 2005.

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Comparison of plaque removal by Sonicare FlexCare and Rota-dent One Step

Objective

To compare the plaque removal efficacy of the Sonicare FlexCare and Rota-dent One Step toothbrushes

Methodology

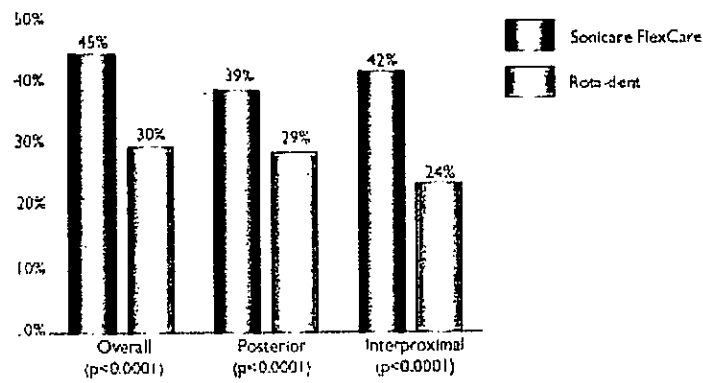
Thirty-two healthy subjects, aged 21-60 years, participated in a single-blind, randomized, crossover design study to assess the plaque removal efficacy and safety of the Sonicare FlexCare (ProResults brush head) and Rota-dent One Step (hollow brush head) power toothbrushes. Each toothbrush was used for one week at home for familiarization. At the end of each period, subjects presented with 24 hours plaque. Plaque was assessed using the Turesky modified Quigley-Hein Plaque Index before and after a two-minute supervised brushing session with the assigned toothbrush. Safety was assessed in oral soft tissue examinations prior to all assessments of plaque.

Results

Sonicare FlexCare removed significantly more plaque than Rota-dent One Step from the dentition overall ($p < 0.0001$) as well as in hard-to-reach areas, i.e., the posterior teeth ($p < 0.0001$) and the interproximal spaces ($p < 0.0001$). Both toothbrushes were safe to use.

Conclusion

Sonicare FlexCare was found to remove significantly more plaque than Rota-dent One Step when assessed over the entire dentition (overall) as well as in hard-to-reach areas.



Moritis K, Jenkins W, Schmitt P, Strate J. Data on file, 2007.

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Comparison of plaque removal by Sonicare FlexCare, Ultreo and Ultreo with ultrasonic function disabled

Objective

To compare the plaque removal efficacy of the Sonicare FlexCare and Ultreo power toothbrush with the ultrasonic function active and disabled

Methodology

Thirty five healthy adults, aged 21-51 years, participated in a single-blind, randomized, crossover design study assessing the plaque removal efficacy and safety of the Sonicare FlexCare and Ultreo power toothbrushes. The Ultreo power toothbrush was tested with and without a functioning ultrasonic feature while still maintaining the bristle motion. Each toothbrush was used for one week at home for familiarization. At the end of each period, subjects presented with 24 hours of plaque accumulation and then had an assessment of plaque using the Turesky modified Quigley and Hein Plaque Index before and after a two-minute supervised brushing with the assigned toothbrush. Safety was assessed in oral soft tissue examinations prior to all assessments of plaque.

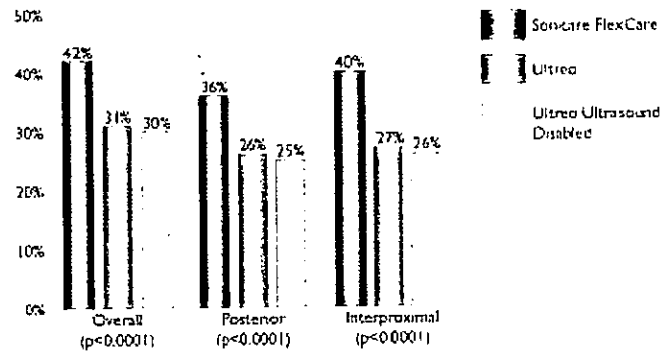
Results

Sonicare FlexCare removed significantly more plaque than Ultreo in either mode from the dentition overall ($p < 0.0001$) as well as in all sub-regions of the mouth ($p < 0.0001$), i.e., the posterior teeth ($p < 0.0001$) and the interproximal spaces ($p < 0.0001$). There was no significant difference in plaque removal from the dentition overall ($p = 0.52$) between the Ultreo with ultrasonic function enabled or disabled. Both brushes were safe to use.

Conclusion

Sonicare FlexCare was found to remove significantly more plaque than Ultreo power toothbrushes with and without the ultrasonic function when assessed over the entire dentition (overall) as well as in hard-to-reach areas.

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Jenkins W, Wei J, Moritis K, Strate J. Data on file, 2007.

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Comparison of gingivitis reduction plaque removal by Sonicare FlexCare and a manual toothbrush

Objective

To evaluate the ability of the Sonicare FlexCare to reduce gingivitis and gingival bleeding over time

To compare the plaque removal ability of the Sonicare FlexCare to a manual toothbrush (Oral-B P40) over time

Methodology

One hundred seventy-five healthy adults aged 18-64 years, participated in a single blind, randomized, parallel group clinical study assessing gingivitis and plaque over time for the Sonicare FlexCare and a manual toothbrush. Eligible subjects were routine manual toothbrush users with a minimum Silness and Loe plaque index of >0.8 presented following 3-6 hours plaque accumulation, with at least 20 sites graded >2 by the Loe and Silness Gingival Index. Eligible subjects were randomized and trained on product usage, 2 minutes twice daily. Subjects retained the assigned product for 4 weeks. Efficacy and safety evaluations occurred at Weeks 2 and 4 in which gingivitis and plaque levels were reassessed.

Results

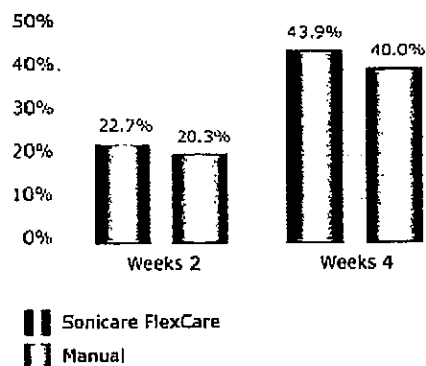
The Sonicare FlexCare showed significant reduction from baseline in gingivitis after 2 and 4 weeks of product use ($p < 0.0001$). The Sonicare FlexCare showed significant reduction from baseline in the number of sites with gingival bleeding over 2 and 4 weeks ($p < 0.0001$). The Sonicare FlexCare was superior to a manual toothbrush in reducing the number of sites with gingival bleeding over 4 weeks ($p = 0.0293$). The Sonicare FlexCare showed significant reduction from baseline in plaque after 2 and 4 weeks of product use ($p < 0.0001$). The Sonicare FlexCare was superior to a manual toothbrush in overall percent plaque reduction over 4 weeks ($p = 0.015$). The Sonicare FlexCare was superior to a manual toothbrush in plaque reduction in hard to reach areas over 4 weeks [posterior $p = 0.002$, interproximal $p = 0.02$, posterior interproximal $p = 0.007$].

Conclusion

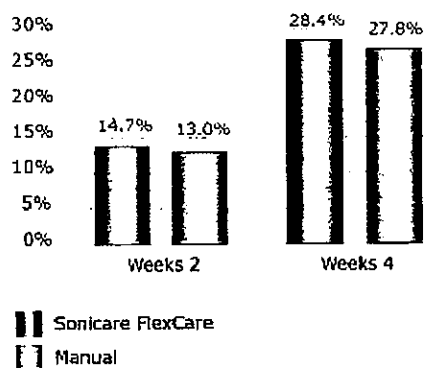
Sonicare FlexCare was found to be safe and effective in reducing gingivitis and plaque. FlexCare was found to be superior to a

manual toothbrush in reducing plaque and sites of gingival bleeding over time.

Percent plaque reduction from baseline overall



Percent gingivitis reduction from baseline overall



Holt J, Sturm D, Master A, Jenkins W, Schmitt P, Hefti AF. A randomized, parallel design study to compare the effects of the Sonicare FlexCare prototype and the Oral-B P40 manual toothbrush on plaque and gingivitis. *Comp Cont Educ Dent* 2007; 28

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Gingival health of a periodontal maintenance gingival health assessment after use of Sonicare Elite

Objective

To demonstrate the ability of Sonicare Elite to reduce gingivitis

Methodology

One hundred subjects participated in this parallel, single-blind study. Subjects were randomly assigned to treatment groups within strata defined by high or low plaque scores at screening. Subjects were evaluated for gingivitis at baseline and after 2,

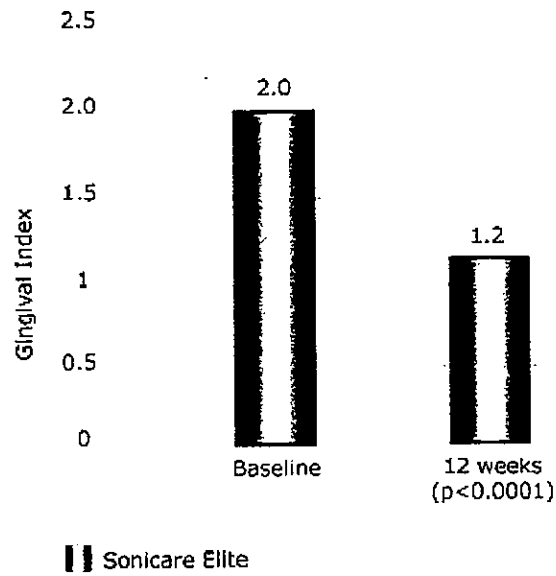
4 and 12 weeks of product use. Gingivitis was assessed with the Löe and Silness Gingival Index.

Results

Subjects using Sonicare Elite showed a significant reduction in gingival index scores in diseased sites after 12 weeks compared to baseline ($p < 0.0001$).

Conclusion

Sonicare Elite reduces gingivitis.



Donly K. University of Texas. Data on file.

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Gingival health of a periodontal maintenance population after the use of Sonicare Elite or a manual toothbrush over a 12-week period

Objective

To assess the gingival health status of a periodontal maintenance population using either Sonicare Elite or a manual toothbrush over a 12-week period

Methodology

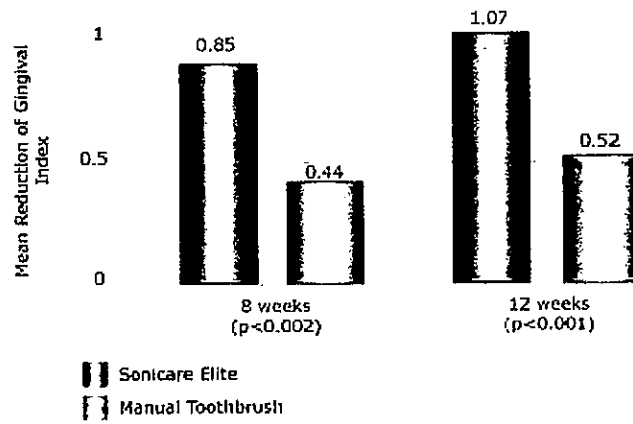
Forty-two periodontal maintenance patients were enrolled in this randomized, controlled, single-blind crossover study. Participants were assigned to either a manual toothbrush or Sonicare Elite and used each toothbrush for a period of 12 weeks. Patients returned to their regular oral hygiene regimen for a period of two weeks before brushing with the second assigned product for another twelve weeks. Prior to entering each of the study periods, participants received a professional polish and brushing instructions. At baseline, eight weeks, and after 12 weeks, measurements were taken for the Gingival Index (GI, Silness & Loe 1963, six surfaces per tooth) and the Gingival Crevicular Fluid Flow Rate (GCFFR, Periotron 6000).

Results

There was no significant difference for the GI between groups at baseline. The mean reduction of the GI after eight weeks was 0.44 for the manual brush and 0.85 for the Sonicare Elite. The respective values after 12 weeks were 0.52 and 1.07. The differences between products were statistically significant in favor of Sonicare Elite after eight weeks (0.41; $p < 0.002$) and after 12 weeks (0.55; $p < 0.001$) of product use. GCFFR values did not change significantly over the treatment period and between toothbrushes.

Conclusion

Sonicare Elite was significantly more effective than a manual toothbrush at reducing gingivitis in a periodontal maintenance population after 8 and 12 weeks of toothbrush use.



*Clausnitzer CE, Termaat SHM, Kruse AE, Hellmich M, Noack MJ.
Data on file, abstract submitted DGZMK Berlin, 2005*

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In vitro assessment of dentin wear resulting from the use of oral hygiene devices

Objective

To evaluate dentin wear associated with the use of the Sonicare FlexCare power toothbrush compared to Oral-B Triumph and a manual toothbrush using simulated clinical conditions

Methodology

Forty human dentin slices with a surface of 3x10 mm were embedded in temporary crown and bridge material and polished to render a smooth surface as starting condition. Samples were either brushed with Sonicare FlexCare at 90 grams, Oral-B

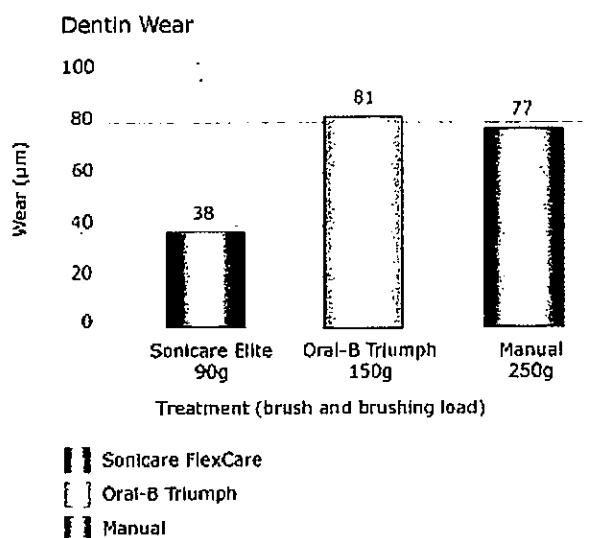
Triumph at 150 grams or Oral-B P35 Soft manual toothbrush at 250 grams. These brushing loads are representing clinical use conditions. All specimens were brushed using a toothpaste slurry based on Crest Cool Mint Gel for a period representing 2 years of clinical brushing. Dentin wear was determined before and after brushing using 3D laser triangulation measurements to establish induced wear from toothbrushing.

Results

Sonicare FlexCare resulted in significantly less dentin wear than both the manual toothbrush ($p < 0.05$) and the Oral-B Triumph ($p < 0.05$). There was no significant difference between the manual and Oral-B Triumph brush.

Conclusion

In this in vitro study, Sonicare FlexCare was found to cause 50% less dentin wear than a manual toothbrush and a rotating-oscillating power toothbrush.



De Jager M, Nelson R, Schmitt P, Moore M, Putt MS, Kunzelmann KH, Nyamaa I, Garcia-Godoy F, Garcia-Godoy C. In vitro assessment of tooth brushing wear of natural and restorative materials. Comp Cont Educ Dent 2007; 28

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In vitro effect of power toothbrushes on orthodontic bracket bond strength

Objective

To evaluate the effect of two new power toothbrushes and a manual toothbrush on the bond strength of orthodontic brackets bonded to human enamel using simulated clinical conditions

Methodology

Orthodontic brackets were bonded to 36 extracted teeth and exposed to Sonicare FlexCare power toothbrush or Oral-B P35 soft manual toothbrush for the equivalent of a two-year exposure to brushing in the presence of a toothpaste slurry.

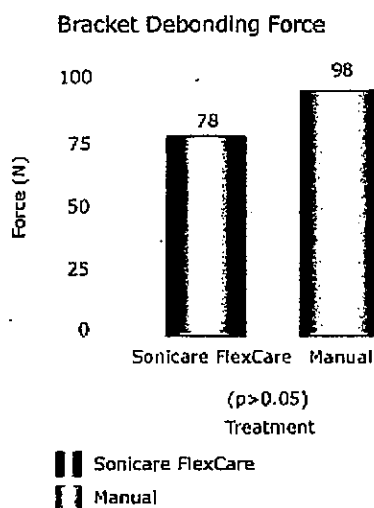
After brushing, the force needed to debond the orthodontic brackets from the teeth was measured.

Results

There were no statistically significant differences in bracket debonding strength between any of the treatments ($p > 0.05$).

Conclusion

This study demonstrated that the Sonicare FlexCare is safe to use for patients with orthodontic brackets compared to a manual toothbrush.



De Jager M, Nelson R, Schmitt P, Moore M, Putt MS, Kunzelmann KH, Nyamaa I, Garcia-Godoy F, Garcia-Godoy C. In vitro assessment of tooth brushing wear of natural and restorative materials. Comp Cont Educ Dent 2007; 28.

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In vitro assessment of the effect of a manual and Sonicare FlexCare toothbrush on gloss and roughness of dental materials

Objective

To evaluate the effect on wear of dental materials of the Sonicare FlexCare power toothbrush and a manual toothbrush using simulated clinical conditions

Methodology

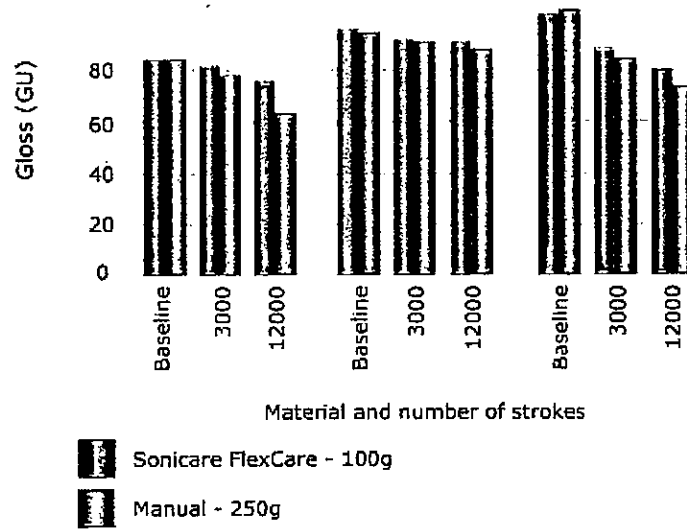
Four different materials were investigated: the restorative composite materials Solidex and EsthetX, the implant material Titanium, and natural bovine enamel. For each material, 32 samples were embedded in acrylic mounts and polished to render a smooth surface as starting condition. Samples were either brushed with Sonicare FlexCare at 100 and 150 grams, or Oral-B P35 Soft manual toothbrush at 150 grams and 250 grams brushing load. All specimens were assessed after 3,000 and 12,000 brushing strokes, representing 6 months and 2 years of brushing, respectively, while using a toothpaste slurry based on Crest® Cool Mint Gel. Surface wear was determined before and after brushing using gloss meter and profilometry.

Results

In general, when differences were noted, they favored the Sonicare FlexCare over the manual brush at clinically observed brushing forces (100 and 250 grams, respectively). For abrasion of Solidex, Sonicare FlexCare at 100 and 150 grams, and the manual brush at 150 grams all showed significantly less abrasion than the manual brush at 250 grams. For gloss of Solidex, Sonicare FlexCare at 100 grams, and the manual brush at 150 grams both retained significantly more gloss than the manual brush at 250 grams. For EsthetX and Titanium, no significant differences were observed. For gloss of bovine enamel, FlexCare at 100 grams retained significantly more gloss than the manual brush at 250g.

Conclusion


This study demonstrated that the Sonicare FlexCare is gentle for use on dental materials compared to a manual toothbrush for up to 2 years of simulated brushing with toothpaste.



De Jager M, Nelson R, Schmitt P, Moore M, Putt MS, Kunzelmann KH, Nyamaa I, Garcia-Godoy F, Garcia-Godoy C. In vitro assessment of tooth brushing wear of natural and restorative materials. Comp Cont Educ Dent 2007; 28.

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Evaluation of tooth shade change following stain induction and Sonicare FlexCare use

Objective

To evaluate the efficacy of the Sonicare FlexCare to remove induced extrinsic tooth stains

Methodology

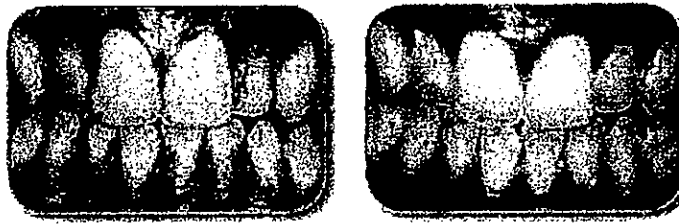
Twenty healthy adults aged 19-53 years participated in a forced-stain model study to assess the ability of the Sonicare FlexCare to mechanically remove extrinsically induced stain. The stain inducing slurry consisted of 0.12% chlorhexidine, doublestrength instant tea, instant coffee and grape juice concentrate used over a period of 3 weeks. Subjects were known stain formers and included coffee, tea, tobacco and red-wine users. Tooth shade was assessed on at least 3 buccal surfaces of the anterior dentition. The evaluation of tooth shade and color change was assessed using the X-Rite ShadeVision® device, a digital imaging analysis tool. Vitapan® Classical shades were derived on the system, as were changes in color parameters using the CIE color equation, $\Delta E = ((\Delta L^*)^2 + (\Delta a^*)^2 + (\Delta b^*)^2)^{1/2}$. Following the period of stain induction, subjects were dispensed a Sonicare FlexCare for use over a 6-week period, with safety and efficacy intervals assessed at 2, 3 and 6 weeks post-product use. A low abrasive dentifrice was used throughout the study.

Results

Sonicare FlexCare was proven to significantly reduce stain over a period of 2, 3 and 6 weeks ($p < 0.0001$). Vitapan Classical shade improvements of at least 2 shades were seen at all time points. ΔE values greater than 3.5 were also observed at these intervals ($p < 0.0001$).

Conclusion

Sonicare FlexCare was shown to be effective in removing commonly observed extrinsic stain-forming pigments from tooth surfaces. An improvement of 2 Vitapan Classical shades was seen following 2, 3 and 6 weeks product use.



Before

After 2 weeks of use
with FlexCare

Putt M, Milleman J, Jenkins W, Wei J, Schmitt P, Strate J. Data on file, 2007.

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Comparison of brushing compliance with Sonicare Xtreme e3000 Series versus manual toothbrush in preteens and teens

Objective

To compare the brushing compliance in preteens and teens with Sonicare Xtreme versus a manual toothbrush

Methodology

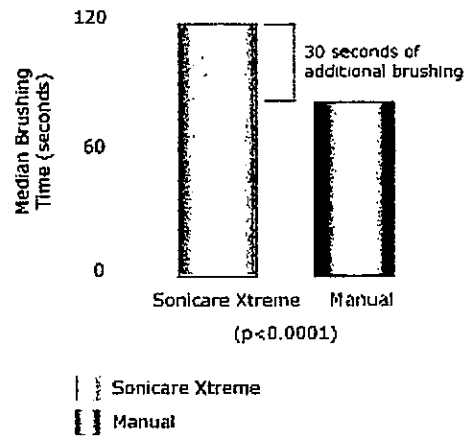
Eighty-two healthy subjects with an average age of 14.35 years were enrolled in an IRB approved randomized, parallel design study to assess compliance in terms of brushing duration with Sonicare Xtreme and manual toothbrush. Each toothbrush was used for two weeks at home. Subjects returned to the research facility at the end of each week, where they were asked to brush as they habitually would with the assigned toothbrush. The brushing event was supervised, video taped and duration was recorded. The repeat assessment after two weeks was performed as user habits may be more accurately reflected over a longer at-home use period. The primary end point was calculated using the observations from the third visit.

Results

Subjects brushed 30 seconds longer with Sonicare Xtreme than with manual toothbrush. Median brushing time using Sonicare Xtreme was 120 seconds versus 90 seconds using a manual toothbrush ($p < 0.0001$). This corresponds to a 33% improvement in compliance with Sonicare Xtreme.

Conclusion


Preteens and teens brushed significantly longer with the Sonicare Xtreme than with a manual toothbrush.



Milleman K R, Putt M S, Master A S, Jenkins W, Souza S M, Sturm D. Data on file, 2005.

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In vitro evaluation of the Sonicare FlexCare Integrated UV Sanitizer

Objective

To evaluate in vitro the ability of the Sonicare FlexCare Integrated UV Sanitizer to reduce viability of microorganisms on the Flexcare ProResults brush heads

Methodology

Several in vitro studies were executed examining various microorganisms and brush heads. In each study, clinical conditions were mimicked carefully: brush heads were artificially contaminated with a selected microorganism in a 2-minute 'brushing' cycle, then rinsed with tap water and sanitized using the 10-minute cycle of exposure to the germicidal ultraviolet light of the UV sanitizer. Non-treated brushes served as a control. Commonly observed microorganisms were tested, including Escherichia coli, Streptococcus mutans, and Herpes Simplex Virus type 1 (HSV1). Investigated brush heads included the Sonicare FlexCare regular-sized and small ProResults brush heads.

Results

Following this procedure, it was demonstrated that the UV sanitizer could reduce up to 99% of E. coli, S. mutans and HSV 1 for both FlexCare ProResults brush heads.

Conclusion

The Sonicare FlexCare Integrated UV sanitizer effectively kills up to 99% of selected microorganisms on selected toothbrush heads.

Hix J, Elliott N, De Jager M. Data on file, 2007.

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In vitro evaluation of the Sonicare UV Sanitizer for various power toothbrush heads

Objective

To evaluate in vitro the ability of the Sonicare UV Sanitizer to reduce viability of microorganisms on several types of brush heads of power toothbrushes

Methodology

Several in vitro studies were executed examining various microorganisms and brush heads. In each study, clinical conditions were mimicked carefully: brush heads were artificially contaminated with a selected microorganism in a 2-minute 'brushing' cycle, then rinsed with tap water and sanitized using the 10-minute cycle of exposure to the germicidal ultraviolet light of the UV sanitizer. Non-treated brushes served as a control. Commonly observed microorganisms were tested, including *Escherichia coli*, *Streptococcus mutans* and Herpes Simplex Virus type 1 (HSV 1). Investigated brush heads included the Sonicare Elite standard brush head, the Sonicare FlexCare regular-sized and small ProResults brush heads, the Oral-B Professional Care FlexiSoft and FlossAction brush heads, and the National Doltz EW910 and EW920 brush heads.

Results

Following this procedure, it was demonstrated that the UV sanitizer could reduce up to 99% of *E. coli*, *S. mutans* and HSV 1 for the brush heads tested in this study.

Conclusion

The Sonicare UV sanitizer effectively kills up to 99% of selected microorganisms on selected toothbrush heads.

Hix J, Elliott N, De Jager M. Data on file, 2007.

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